US EPA's Implementation of the Clean Water Act through its Independent Applicability Policy Attempts to Ease the Administrative Burden of Water Quality Regulations

- Leads to Administrative Exceedances of Water Quality Standards (Objectives) Where No Adverse Impacts on the Numbers, Types and Characteristics of Desirable Forms of Aquatic Life Occur, etc.
- Requires Meeting Numeric Chemical-Specific Water Quality Objectives for Potentially Toxic Chemicals, Such as Heavy Metals, Even Though Properly Conducted Toxicity Tests Show That the Constituents of Concern Are in Non-Toxic Forms
- US EPA Washington D.C. Recognizes This Problem and Has Proposed, as Part of Its Announced Proposed Rule Making (ANPRM) for Water Quality Standards, to Try to Address This Issue
- Environmental Groups Will Vigorously Oppose US EPA Efforts Since It Would Complicate Their Ability to Take Action against a Discharger Associated with Exceedance of a Water Quality Standard

The Agency Focuses on Regulating Chemicals Rather Than Chemical Impacts

- Potentially Toxic Chemicals vs. Measured Toxicity Can Readily Lead to Massive Waste of Public and Private Funds
- Should Be Using Best Professional Judgement, Weight of Evidence Approach in Which Appropriate Use of Chemical, Biological Impact and Organism Assemblage Information to Determine Whether Excessive Discharges of Constituents from a Regulated Source Could Occur or Are Occurring

Independent Applicability of Chemical and Biological Criteria/Standards and Effluent Toxicity Testing

G. Fred Lee, Ph.D., P.E. and Anne Jones-Lee, Ph.D. • G. Fred Lee & Associates/EnviroQual • El Macero, CA

The National Environmental Journal
5(1):60-63 (1995)

In 1985 the U.S. Environmental Protection Agency (EPA) advocated a two-part approach for water pollution control involving chemical concentration-based effluent limits for those parameters for which water quality criteria had been developed and toxicity test-based effluent limitations. The chemical-specific component was designed to prevent exceedances of water quality criteria values in ambient waters receiving point and non-point source discharges or runoff; the water quality criteria were, in large part, developed to be chronic-exposure, safe concentrations for sensitive aquatic organisms. The toxicity test component was designed to indicate potential toxicity effects associated with an activity, to account for the possible presence of a toxic contaminant that did not have a water quality criterion, and to provide the opportunity for site-specific tuning of the chemical-specific criteria for synergism, antagonism, chemical availability, and exposure situations.

EPA has since expanded its recommended approaches to include a direct measure of biological characteristics (biological criteria) of surface waters. The biological criteria focus on the numbers, types and characteristics of organisms present downstream of a discharge or runoff compared with the numbers, types and characteristics expected based on the aquatic life habitat characteristics. A number of states have developed biological criteria and have been using them in water pollution control programs.

At a 1992 EPA workshop on water quality criteria and standards, EPA representatives revealed that the Agency would soon be releasing a position paper announcing the policy of "Independent Applicability." The June 1992 issue of EPA's "Newsletter Water Quality Criteria & Standards," however, stated that Independent Applicability is EPA's present position, and it is discussed in several documents. That inconsistency notwithstanding, the policy and/or practice of Independent Applicability and its ramifications for water pollutant control in the country truly deserves a thorough examination.

The Problem with Independent Applicability

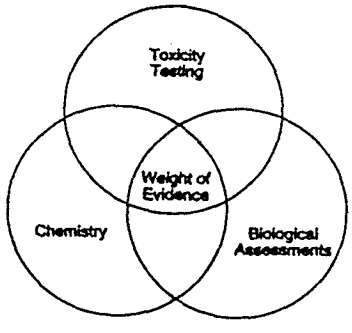
According to EPA in 1992, the three above-mentioned regulatory approaches for the regulation of toxics would be applicable to all waters, and the approach that was most "sensitive," (most limiting) for a particular waterbody would guide management. This led to many questions about how the policy would handle a situation in which:

- Biological studies of the receiving waters showed healthy and wholesome fish and other aquatic life populations, the same as those that would be expected based on habitat characteristics, and
- Short-term chronic toxicity testing of the waters in the region showed no aquatic life toxicity, but
- Numeric water quality criteria (or standards equivalent to them) were exceeded.

At that time, EPA stated that even under such circumstances, the discharger or source of runoff would have to implement control programs to eliminate the exceedances of the water quality criteria or standards, or change the standards. It was reported to be EPA's position under the policy of independent applicability to require that site-specific water quality criteria or standards be developed in order to justify not complying with EPA's water quality criteria, or more properly, state standards equivalent to these criteria.

It is appropriate to question the appropriateness of requiring dischargers and state regulatory agencies to develop site-specific water quality standards in response to that scenario (i.e., a situation in which it had been shown that there was no aquatic life toxicity in the receiving waters for the discharge/runoff and the populations of aquatic life in the region of expected impact were what would be expected based on habitat characteristics). There have been few attempts to develop site-specific water quality standards as outlined in EPA's Water Quality Criteria Handbook. As a consequence of the state of California Water Resources Control Board's extension of EPA criteria as state water quality objectives (standards) in April 1991, a number of studies have been undertaken in California in an effort to develop site-specific objectives. More than $300,000 were spent in such effort in the San Francisco Bay area; more than $1.1 million were spent in efforts to develop site-specific criteria/standards for the Santa Ana River in southern California. However, as discussed below, the funds spent on trying to develop site-specific water quality objectives for copper in San

APPROACHES TO WATER QUALITY-BASED TOXICS CONTROL



California Toxics Rule

Since the State of California Has Not Developed Water Quality Objectives (CA is the Only State That Does Not Have Standards) US EPA Must, in Accord with the Clean Water Act, Develop State Water Quality Standards for California

US EPA Region 9 Promulgates California Toxics Rule Based on US EPA 1986 "Gold Book" Criteria With 1995 Update

US EPA and WRCB Agreed That the US EPA Would Develop California Water Quality Criteria/Objectives for Implementation of the National Toxics Rule – Became California Toxics Rule

WRCB Is to Develop an Implementation Approach for the California Toxics Rule

- Draft Issued September 11, 1997
- Supplement Issued October 16, 1997
- Hearings to Be Held on November 17, 1997 in Sacramento
- Scheduled for Adoption Spring 1998

Water Quality Criteria-Objectives That Will Be Developed as Part of the California Toxics Rule Will Continue to Significantly Over-Regulate the Discharge of Contaminants Associated with Dredging Operations and Dredged Sediment Disposal Overflow Waters

- Many of the Chemicals of Concern in Dredged Sediment in Non-Toxic/Unavailable Forms
- Aquatic Organism Exposure Conditions That Occur in a Water Column Associated with Dredging and Dredged Sediment Disposal Operations Are Short Compared to Those Used in Developing the Acute and Chronic Critical Concentrations for Aquatic Life Criteria